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Marine Casualty Investigations

Enquêtes sur les accidents maritimes

Investigation Report to the Minister pursuant to sections 477 or 480 of the Canada Shipping Act (1985)

Rapport d'investigation au Ministre conformément aux articles 477 ou 480 de la Loi sur la marine marchande du Canada (1985)

Canada

Ce rapport est aussi disponible en français.

REPORT OF INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING THE FIRE WHICH OCCURRED ABOARD THE NORWEGIAN VESSEL "STAR ROVER", OFF POINTE A MICHEL IN THE ST. LAWRENCE RIVER ON JANUARY 25, 1989.

REPORT No. 534

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REPORT OF INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING THE FIRE WHICH OCCURRED ABOARD THE NORWEGIAN VESSEL "STAR ROVER", OFF POINTE A MICHEL IN THE ST. LAWRENCE RIVER ON JANUARY 25, 1989.

Particulars of Vessel

Name	"STAR ROVER", formerly "SEAROVER", registered at Limassol
Official Number	7824015
Port of Registry	Bergen
Flag	Norwegian
Call Sign	LANF 2
Gross tonnage	14,592 tonnes
Net tonnage	9,584 tonnes
Length (overall)	176.5 metres
Breadth	22.91 metres
Depth	14.025 metres
Draught (at the time of the fire)	F: 10.45 metres A: 10.45 metres
Type	Bulk carrier/Container
Construction	Of steel at Wismar, D.D.R. 1979
Propulsion	Eight-cylinder M.A. N. diesel engine of 11,200 BHP driving a single controllable pitch propeller
Speed	13 knots
Bow Thruster	One four bladed propeller of 1,000 H.P.
Cargo	21,921 tonnes general
Crew	19, including the master
Passengers	None

Classification	Lloyd's 100 A1 with "ICE CLASS 1A"
Owner	Rover K/S Bergen, Norway
Operator	Billabong Ship Management, Norway
Local Agent	Agence Océanique du Bas St-Laurent Ltée, Quebec

Navigation Equipment

Radar 1	Decca 3 cm RM 1626 A
Radar 2	Decca 10 cm ACS 1630 A
Direction Finder	Navigon C. Plath
Echo Sounder 1	Simrad IR 201
Echo Sounder 2	None
Decca	None
Loran C	None
Sav-Nav	Tracor Sat Ellite Navigator II
VHF/FM	Apelco VXL 5000
VHF	Icom IC - M8D
MF	Muirhead Radio
SSB	Delcom Type DC/300 D
Gyro Compass	Anschutz Standard 4 DHI 02G
Magnetic Compass	One
Automatic pilot	Anschutz
Facsimile	Taiko TF-731

Note 1. All times in this report are expressed in Eastern Standard Time (UTC - 5 hours).

2. All references to Canada Shipping Act in this report refer to Chapter S-9-1985 of the Revised Statutes of

Canada.

Background

The Norwegian Vessel "STAR ROVER" with a crew of 19 Philippine nationals on board, departed Port Alfred January 24, 1989 for Sheerness, England.

On January 25 at 0823, a fire broke out in a cabin on the upper deck when the vessel was off Pointe à Michel. From the start the crew attempted to contain and extinguish the fire, but without success. Smoke spread progressively into the wheel-house, accommodation and engine-room, forcing the entire crew on deck.

The smoke forced the navigating personnel to evacuate the wheel-house, and Les Escoumins Vessel Traffic Services (VTS) lost radio contact with the vessel. The engine-room personnel, hindered by the smoke, shut down all the machinery before evacuating the engine-room. Unfortunately, the emergency fire pump did not work because the water in the fire main was frozen. When help arrived, the regular fire equipment on the ship lacked water. Fire hoses and pumping equipment aboard Canadian Coast Guard ships had to be used to put out the fire. At 1600, the fire was declared under control by Canadian Coast Guard employees.

The fire caused neither death nor injury, and no pollution resulted. The cost of repairing the vessel was estimated to be about $2,000,000.

Narrative

On December 18, 1988, the newly renamed vessel "STAR ROVER" departed the port of Ijmuiden, Holland with a crew of 19 Philippine nationals. Stowed in her holds were some 5,500 tonnes of iron for Contrecoeur, Quebec.

On January 1, 1989, the "STAR ROVER" arrived at the Sorel anchorage and, on January 9 she made fast alongside the discharging quay at Contrecoeur. After discharging, on her return voyage the vessel commenced loading as follows:

- on January 11, 1989, at Contrecoeur, 13,096 t of steel, for Finland;
- on January 18, 1989, at Quebec City, 5,495 t of newsprint for Sheerness, England, and
- on January 23, 1989, at Port Alfred, 3330 t of

aluminum ingots, for Rotterdam.

On January 24, at 2100, the vessel departed Port Alfred at an even keel draught of 10.45 m with 602 t of bunker oil and 62.2 t of diesel oil in her tanks. At 0455 the next morning she arrived off Les Escoumins pilot station. After having disembarked the pilot, the vessel headed out to sea toward Sheerness, England, her first port of call.

At 0612, the "STAR ROVER" was 5.2 M off Pointe au Boisvert, and her course was altered to 049°(G). At 0800, the 8-12 watch relieved the watch on the bridge. Cap Columbier was bearing 300°(T) and at a distance of 10.6 M. From the bridge, close pack-ice was observed in the immediate vicinity. The wind was from the NW at 10-15 knots, the air temperature was - 18°C and the sky was partly cloudy.

At 0812, from calling-in-point (CIP) 4A, the officer of the watch (OOW) reported the vessel's position to VTS Les Esoumins. He was alone on the bridge and the vessel was steering by automatic pilot. The radio operator was in the radio-room abaft the bridge, on the port side. He was listening to a storm warning being broadcast by Coast Guard Radio Station CFH, Halifax.

Meanwhile, the chief engineer was in the washroom of his cabin when he smelled smoke. He came out of his cabin, situated at the forward end of the port side of the accommodation on the upperdeck. On coming out, he noticed a little smoke in the port alleyway. He went immediately to the bridge to warn the OOW of a fire on the upper deck. The OOW sounded the general alarm about 0823, then, followed by the chief engineer and the radio operator, he went to the upper deck port alleyway. He brought with him a portable CO^2 extinguisher. Alerted by the alarm, the master rushed to the bridge.

On the upper deck, the master met the chief engineer who gave him information about the fire. Smoke was seen to be escaping from around the door and through the door vent of the electrician's cabin (see annex II). On checking, the rooms adjacent to the electrician's cabin were found to be intact. The door of the cabin in which the seat of the fire appeared to be was opened, but those doing so were forced back by the thick smoke. The door was closed immediately.

The OOW returned to the bridge, and the master went to the junction box and opened the circuit-breakers to disconnect the electricity to the upper deck. During this time the alarm bell on the fire alarm panel went off, but nobody thought to verify the sector indicator on the panel as the

seat of the fire had already been localized.

While the OOW determined the vessel's position, speed was reduced to 'slow ahead'. The master manoeuvred his vessel so as to bring the wind astern, then reduced propeller pitch to zero. He then contacted the chief engineer, who was in the engine control room, to ask him to stop the mechanical ventilation of the engine-room. At 0834, the master called VTS Les Escoumins to ask for immediate assistance because of the fire which was raging in the vessel's accommodation. Following this call the Marine Rescue Sub-centre (MRSC) at Quebec City was immediately informed of the 'Urgency' call transmitted by the "STAR ROVER" which was off Pointe à Michel. At about 0902 VTS Les Escoumins lost radio contact with the "STAR ROVER"

Meanwhile, the crew members, under the direction of the first mate, were unrolling the hoses and bringing the self-contained breathing apparatus (SCBA) and other equipment to where the fire was burning. The first hose was connected to a fire hydrant on the starboard side near the chief officer's cabin and run up the central staircase to the next deck. Another hose was run along the starboard alleyway on the upper deck. Two others were connected to outside fire hydrants and run through the after door of the port alleyway. (See Annex II).

The two fire-fighting teams in the upper deck alleyway were soon forced out by the heavy smoke. The hoses were left with open jet nozzles in the alleyway, letting the water flow down the stairs to the lower decks. Spraying was continued through the smoke at random, directing the spray from the other two hoses, which were both equipped with jet nozzles, through the outside door into the port side alleyway but they never actually reached the fire.

When he entered the engine-room, the chief engineer immediately cut the electrical power to the accommodation, turned off the mechanical ventilation, and closed all openings, except for the door to the forward tunnel. More smoke was filtering into the engine-room every minute. Before evacuating the engine-room, the chief engineer shut down the generator and the main fire pump stopped working. The flow of water into the fire main and fire hoses decreased until finally stopping completely.

During this time, the emergency generator was working and so was the emergency fire pump, situated amidships. It was at this time that it became apparent that the water in the fire main was frozen.

At 0950, helicopter CG 365, took off from the CCGV "DES GROSEILLIERS" with the chief officer and a sailor aboard and flew towards the "STAR ROVER". At 1010 helicopter CG 356 left Tadoussac, arrived at the vessel and landed on her foredeck. It was quickly determined that the "STAR ROVER" had no electricity. The crew were on deck outside the accommodation and had no water to fight the fire. The bridge had been evacuated because of smoke.

Helicopter GC 365 arrived at the vessel and landed on her foredeck about 1025. The chief officer advised his vessel, the CCGV "DES GROSEILLIERS", to send a fire-fighting team by helicopter and he informed the master that the "STAR ROVER" had no water as her pumps were not working.

About 1134 the CCGV "DES GROSEILLIERS" arrived off the "STAR ROVER" and commenced coming alongside her. About 1146 the "DES GROSEILLIERS" was made fast on the port quarter and about 1148, the first fire hose was sent aboard the "STAR ROVER".

About 1153 a second fire hose was sent aboard and cooling around the seat of the fire on the upper deck was commenced. During this time, the fire-fighting team equipped with SCBA and a hose, entered the after door of the upper deck port alleyway.

At 1315, another hose was connected aboard the CCGV "DES GROSEILLIERS" and then sent aboard the "STAR ROVER" with a fog nozzle.

About 1433, a second CCGV the "SIR WILFRED LAURIER" arrived off the "STAR ROVER" and started to come alongside her starboard quarter. About 1438, two fire hoses were connected aboard and sent aboard the other vessel. Another team of fire-fighters from the "SIR WILFRED LAURIER" entered the upper deck starboard alleyway by the after door. About 1525 the two fire-fighting teams, who were inside the accommodation on the upper deck, indicated that the fire seemed to be under control but that it was very hot in the middle of the accommodation. About 1550, the two teams met in the forward cross alleyway, not far from the chief engineer's cabin and the fire was then declared to be under control.

Ventilation of the interior of the accommodation was commenced while the fire-fighting teams put out small fires that had started up in various places.

About 1600, a team of fire-fighters from Monti-Joli arrived aboard the "STAR ROVER" by helicopter. It was

determined by them that it was important to ventilate the accommodation so as to evacuate gases and smoke. Then spraying had to be stopped because there was too much water running down from one deck to another by the stairways. It was estimated that the vessel was listed 3° to port at this time.

Portable pumps were used to pump the water out of the alleyways on the lower decks and by 2200, the water had been removed.

The next day, January 26, the "STAR ROVER" was prepared for the tow to Quebec City. Escorted by CCGV "SIR WILFRED LAURIER", two tugs, the "CAPTAIN IOANNIS S" and the "DONALD P", commenced the tow at 1330.

At 0205 the next morning, January 27, nine members of the crew of the "STAR ROVER" disembarked at Les Escoumins pilot station and were then sent back to Quebec City. The other 10 members of the crew remained aboard the vessel with no power or heating. At about 0320 the "STAR ROVER" called the CCGV "SIR WILFRED LAURIER" to report that 2 members of the crew appeared to be suffering from the cold. About 0405 the two sick seamen were transferred aboard the "SIR WILFRED LAURIER" and they were then disembarked at Gros Cacouna about 0600 and taken to hospital at Riviere-du-Loup. At the hospital, the two crew members, the chief and second officers, were diagnosed as having been intoxicated by the noxious gases of a charcoal fire improvised for heating and to make coffee in the crew's mess.

At about noon on January 28, towed by the two tugs, the "STAR ROVER" arrived in the Port of Quebec to undergo inspection and temporary repairs. Following her repairs the vessel departed Quebec for sea on February 17, 1989.

Analysis

1. Vessel Certificates

When the fire occurred, all the certificates of the "STAR ROVER" were valid. The last megohm test on the ship's electrical network had been conducted at Piraeus, Greece, in May, 1985. The insulation resistance was deemed satisfactory. The test was valid for five years.

2. Vessel Registration

The "STAR ROVER" is registered on the Norwegian International Ship Registry (NIS) and is operated according to Norwegian laws and regulations. Because the vessel

is on the NIS the Norwegian Maritime Directorate approved a full Philippine crew and granted a dispensation to the Philippine captain, valid until October 31, 1989.

3. Weather Conditions

According to the report made by the vessel at the time of the fire the sky was clear and the visibility good. Air temperature was -18°C, the wind was from the NW at 10 to 15 knots, and the sea was calm and covered with drifting ice.

4. The Position of the Vessel

At the time of the fire, the "STAR ROVER" was 11 n. mi. off Pointe à Michel (see chartlet).

5. Lifeboat and Fire Drill

The log reports that lifeboat and fire drill was conducted regularly. The last drill had taken place on January 21, 1989, four days before the fire. After leaving Ijmuiden, the crew had fire and lifeboat drills on December 18, 1988, and on January 7, 14, and 21, 1989.

6. Detection of the Fire

All the cabins aboard the "STAR ROVER" had heat detectors which were connected to a fire alarm panel on the bridge. To set off a heat detector, the temperature in the cabin has to rise above a certain preset temperature.

If a fire smoulders for a while, a lot of smoke can build up before the alarm goes off. This explains why smoke was detected and the fire located before the fire alarm panel on the bridge sounded.

7. Origin of the Fire

Crew members report that the fire must have started in the electrician's cabin on the port side of the upper deck because:

- smoke was seen escaping around the door and through the door vent of the electrician's cabin;

- crew members checked the cabins adjacent to the electrician's cabin and found no smoke; and

- when they opened the door of the electrician's cabin, thick smoke forced them back.

The pattern of the burn marks in the cabin suggested that the fire started on or near the couch, close to a small refrigerator (see photos), and then spread upwards.

The fire probably did not start in the deckhead because, if it had, smoke would have spread quickly to the other cabins and to the alleyway. However, at first the smoke was concentrated in the electrician's cabin. No one actually saw flames in the cabin, though dense smoke was seen there.

8. <u>The attempts made by the crew of the "STAR ROVER" to extinguish the fire</u>

A number of fire extinguishers were used and four fire hoses deployed in the unsuccessful attempt to contain and extinguish the fire. The crew also used four SCBA's. The equipment was used haphazardly without ever reaching or attacking the seat of the fire.

Shortly after the fire started, the mechanical system of ventilation in the engine-room was shut down. As a result the air in the engine-room became untenable and eventually the engine-room was evacuated after all machinery including the fire pump was stopped. The emergency generator and fire pump were started but it appears that the water in the fire main was frozen.

About 1000, helicopter GC 356 was the first to arrive at the "STAR ROVER" and it was quickly determined that the vessel had no electric power and was without water to fight the fire. The crew was outside the accommodation and the wheel-house had been evacuated because of smoke.

As VTS, Les Escoumins lost radio contact with the vessel about 0902, it is very probable that the electricity had already been cut off at that time.

9. <u>The Spread of the Fire</u>

The fire was discovered about 0823 following which an attempt to contain it was made. Rapidly, however, the crew was forced outside of the accommodation, firstly because of the smoke and following this a lack of water. About 1146 the CCGV "DES GROSEILLIERS" was made fast alongside the "STAR ROVER" and about 1148 the first fire hose had been sent aboard. Cooling of the area was

commenced and about 1151 fire-fighters from CCGV "DES GROSEILLIERS" penetrated the upper deck port alleyway to fight the fire, about three and a half hours after it had started.

During this time the fire was making slow progress. At first it was limited to one cabin. By the time that the fire-fighters from the "DES GROSEILLIERS" entered the alleyway, the fire had spread into the deckhead and the cabins adjacent to the electrician's cabin, but smoke had spread throughout the accommodation on all decks.

The non-flammable and fire-resistant materials used in the construction of the accommodation unquestionably slowed the progression of the fire and limited the damage done.

10. **How crew members of Canadian Coast Guard vessels fought and extinguished the fire**

The chief officer and a sailor from the CCGV "DES GROSEILLIERS" arrived on board the "STAR ROVER" by helicopter, at about 1025. They brought with them one SCBA, two gasoline-powered pumps and two hoses about 8 m long. The chief officer met with the master of the "STAR ROVER" and they made a tour of inspection to analyze the situation. It was determined that the whole crew was outside on deck and that smoke was issuing from some doors. The vessel had no power and the fire hoses were frozen. On checking the accommodation it was determined the smoke had spread to all decks, including the wheel-house. Around the area of the upper deck where the fire was raging, the bulkheads were hot but not on fire.

Some fire extinguishers were in a pile near the after door which gave access to the port side alleyway. Several of them had been used.

The two wheel-house doors were opened for ventilation, but it was realized that this was a mistake as this seemed only to feed the fire. Because of the amount of suction needed to draw water from the river and to pump it to the upper decks, the gasoline-powered pumps could not be used. As it was found impossible to use the fire-fighting equipment of the "STAR ROVER" because of a lack of water, it was decided to wait for the arrival of the CCGV "DES GROSEILLIERS".

As soon as the "DES GROSEILLIERS" arrived a plan of action was decided upon. About 1148, cooling of the

upper deck was commenced with the first fire hose. At about 1151, the fire-fighting team, two of the "DES GROSEILLIERS" crew wearing SCBA, entered the upper deck port alleyway. The smoke was thick and the heat intense. They proceeded slowly towards the inside.

When they reached the first cabin the door was open and flames were seen inside and behind the door.

They directed a fine spray of water at the flames but the heat and a flash-over on the deckhead forced them to retreat. The attack team had been informed that the fire had started in the second cabin, so it was decided to break two of the cabin's port-holes in which the hoses were to be introduced. With great difficulty, they slowly fought their way into the alleyway. The heat was intense and the water evaporated rapidly. The panels in the deckhead were coming down and blocking their path.

After the CCGV "SIR WILFRED LAURIER" arrived at 1438, another fire-fighting team entered the starboard alleyway by its after door. At 1550, the two teams met on the upper deck, not far from the chief engineer's room. The fire was then declared to be under control.

11. Damage caused by the fire

The wheel-house suffered smoke-damage and the ventilator compartment above the fire site was damaged by the heat.

On the upper deck, all the cabins on the port side up to the master's cabin were destroyed (the master's cabin was situated at the forward end of the accommodation on the starboard side). The starboard side of the deck suffered smoke damage, and the electrical wiring in deckhead on the port side including the wiring to the bridge melted. The lower deck suffered water smoke damage. The cargo was undamaged by the fire.

12. Construction materials

The stairwell in the accommodation area was not enclosed. Some of the crew went into this area to rescue clothes and personal belongings, letting in fresh air that fanned the flames.

The requirement to have stairwells enclosed appears in the consolidated text of the SOLAS convention of 1975, the protocol to SOLAS of 1978 and the amendments to SOLAS of 1981 and 1983. Chapter II-2, part C, regula-

tion 46 refers.

The requirement also appears in the amendment to the International Convention for the Safety of Life at Sea 1974, however it does not appear in the 1974 convention itself.

This requirement, which did not apply to existing vessels, did not come into force until September 1, 1984. The "STAR ROVER" was built in the German Democratic Republic in 1979 and was not, therefore, required to comply.

There is no doubt whatsoever that the non-flammable and fire-resistance materials used in the construction of the accommodation of the "STAR ROVER" slowed down the fire's progression and limited the damage it caused.

13. **Fire-fighting equipment available**

In the interior of the vessel, the "STAR ROVER" had two fire hydrants with hoses on every deck and numerous portable fire extinguishers.

The holds and engine-room were fitted with permanent CO^2 smothering installations.

Four SCBA's, nozzles and fog-nozzles, axes and other equipment were available to the crew to fight the fire.

14. **Electrical problems experienced before the fire of January 25, 1989**

While the "STAR ROVER" was in Canadian Waters she experienced the following electrical problems:

- at Contrecoeur, on January 14, 1989, municipal fire-fighters had to be called to assist after the noise of an explosion was heard and the engine control room was found to be full of smoke. It was later discovered that the problem was with the bow-thruster contact breaker on the main electrical distribution panel;

- the electrician was obliged to disconnect and isolate an electrical outlet after the loading foreman on board the "STAR ROVER" discovered electrical sparks round the outlet. This outlet was installed above the door of the owner's cabin, next door to the electrician's cabin. This incident happened when the vessel was in Port Alfred.

15. **The evacuation of the engine-room**

According to the chief engineer on his arrival in the engine-room he disconnected electric power to the accommodation, started up the fire pump and shut down the climate control system. Propeller pitch was at zero and fuel was changed over from heavy oil to diesel. Only one of the three generators was working. All watertight doors were closed and the engine-room ventilation system shut down. The chief engineer remained in the engine control to monitor the fire pump pressure. He attempted to communicate with the bridge but was unsuccessful. As smoke was filtering into the engine-room, the chief engineer and an oiler, after having stopped everything, evacuated the engine-room by the forward tunnel.

The chief engineer emphasized that his action of shutting down everything in the engine-room was motivated by the fact that water was infiltrating the control room and that the megohmeter on the main distribution panel indicated one or more defective circuits. Rather than locating the defective circuit(s), he shut everything down and evacuated the engine-room.

16. **Starting up of the emergency system**

After the engine-room had been evacuated, the emergency generator in the forward part of the vessel started up, as did the emergency fire pump located between holds Nos. 1 and 2. It was reported that even though the emergency fire pump started there was no water in the fire main because the water had frozen.

17. **What the electrician was doing before the fire started**

The electrician was a smoker and he had been working long hours before the fire started.

He had worked all day as well as the evening of January 24. After he was ordered to by the chief engineer, he went to his cabin to rest at 0230 on January 25.

He declared that he did not smoke in his cabin before going to sleep on his day bed. About 0530 he woke up and subsequently got up to start his workday at 0600.

When the general alarm sounded, he stated that he was in the engine-room to make his routine inspection as he did every morning.

However, an officer who was connecting a fire hose on the upper deck suddenly saw the electrician coming out of the smoke in the port alleyway. At this time the officer reported that the electrician had said to him that the fire was in his cabin. Following this the electrician went down to the lower decks to catch his breath.

It cannot be determined with certainty where the electrician was at the start of the fire.

18. The Rescue Operation

At about 0837, the Marine Rescue Sub-Centre (MRSC) at Quebec City was alerted by VTS Les Escoumins that the Norwegian vessel "STAR ROVER" had a fire in her accommodation. On receipt of this information a rescue operation to send assistance to the burning vessel was started.

At the time of the alert, the CCGV "DES GROSEILLIERS", with helicopter GC 365 aboard, was at Matane about 39 nautical miles from the "STAR ROVER"; helicopter GC 356 was at Tadoussac, CCGV "SIR WILFRED LAURIER" was 77 nautical miles to the west of the "STAR ROVER" and the tug "CAPT IOANNIS S" was about 50 nautical miles to the east. Canadian Forces rescue helicopter "RESCUE 302" was at Moncton about 219 nautical miles away.

19. The probable causes of the fire

There is absolutely no doubt that the fire started in the electrician's cabin. As to the exact cause of the fire, it remains unknown. The electrician was a smoker and the fire may have been caused by careless smoking.

Electrical problems had occurred before the fire of January 25, 1989, so the possibility that the fire was caused by an electrical problem cannot be completely discounted. The majority of the electrical wiring was installed in the deckhead, and if the fire was caused by an electrical problem, smoke would have spread into the bulkheads and deckhead at the beginning of the fire, rather than being concentrated in the electrician's cabin. However, there would have been the normal electrical outlets in the cabin. Nevertheless, the pattern of the burn marks inside the cabin suggested that the fire started above the deck, on or near the day bed in the electrician's cabin.

20. Fire-fighting, training undergone by the "STAR ROVER" crew.

When the crew embarked at the port of Rotterdam in mid-December 1988, they had all recently completed the following courses in Manila, the Philippines:

- fire-fighting
- first aid at sea;
- lifesaving equipment; and
- survival techniques.

21. Officers qualifications

All the officers aboard the "STAR ROVER" were the holders of Philippine certificates and duly licenced for the class of foreign-going voyage.

The master has been sailing since 1969. He is the holder of a Philippine Certificate of Competency as Master (Foreign-Going) issued in 1978. He obtained his first deck officer's certificate in 1970/1971. He sailed as chief officer from 1976 to 1985 and as master since 1986. He was master of the "STAR ROVER" from November 1988.

The chief officer of the "STAR ROVER" is the holder of a Philippine Certificate of Competency as Master (Foreign-Going) issued in 1986. Formerly he had been the holder of a certificate of competency as chief officer, issued in 1976. He has been sailing as chief officer since 1983 and has been aboard the "STAR ROVER" since December 16, 1988.

The chief engineer of the "STAR ROVER" has been sailing since 1962 and has been the holder of a Philippine Certificate of Competency as Chief engineer since 1986. He has been the chief engineer of the "STAR ROVER" since December 1988.

Findings

At 0823, on January 25, 1989, a fire broke out in the electrician's cabin on the upper deck of the "STAR ROVER". The vessel was off Pointe-a-Michel in the river St. Lawrence. The intervention of two Canadian Coast Guard vessels was necessary, whose crews contained and extinguished the fire.

The exact cause of the fire is unknown. However it was due to one of the following causes:

- careless smoking; or

- a defect in the electrical wiring.

An examination of the burn pattern in the cabin would suggest that the fire started in the area of the day-bed and later spread laterally to the adjoining cabins.

Other Findings

The crew of the "STAR ROVER", all of whom had recently completed a fire-fighting course, quickly located the fire which, however, they were unable to contain or to extinguish.

Some of the crew by entering the accommodation to recover clothes and personal effects created a flow of air to the seat of the fire.

The crew used non-adjustable jet fire nozzles and sprayed water at random without ever reaching the seat of the fire.

The mechanical ventilation of the engine-room was shut down prematurely and all the machinery was stopped. The engine-room was then evacuated without any effort being made to keep it operational to enable the fire to be fought.

The emergency generator and emergency fire-pump were started up but the water in the forward part of the main fire line was frozen.

Radio contact with the "STAR ROVER" was lost due to the forced evacuation of the wheel-house because of smoke.

Crew from two Canadian Coast Guard vessels efficiently contained, fought and extinguished the fire and saved the "STAR ROVER" from more serious damage.

The engine-room was entered after the fire was extinguished. No smoke, odour or water was found.

The accumulation of water on the lower deck was due to blocked scuppers.

The use of a charcoal fire in an enclosed space aboard the "STAR ROVER", caused fumes which intoxicated two of her crew.

Marine Casualty Investigations
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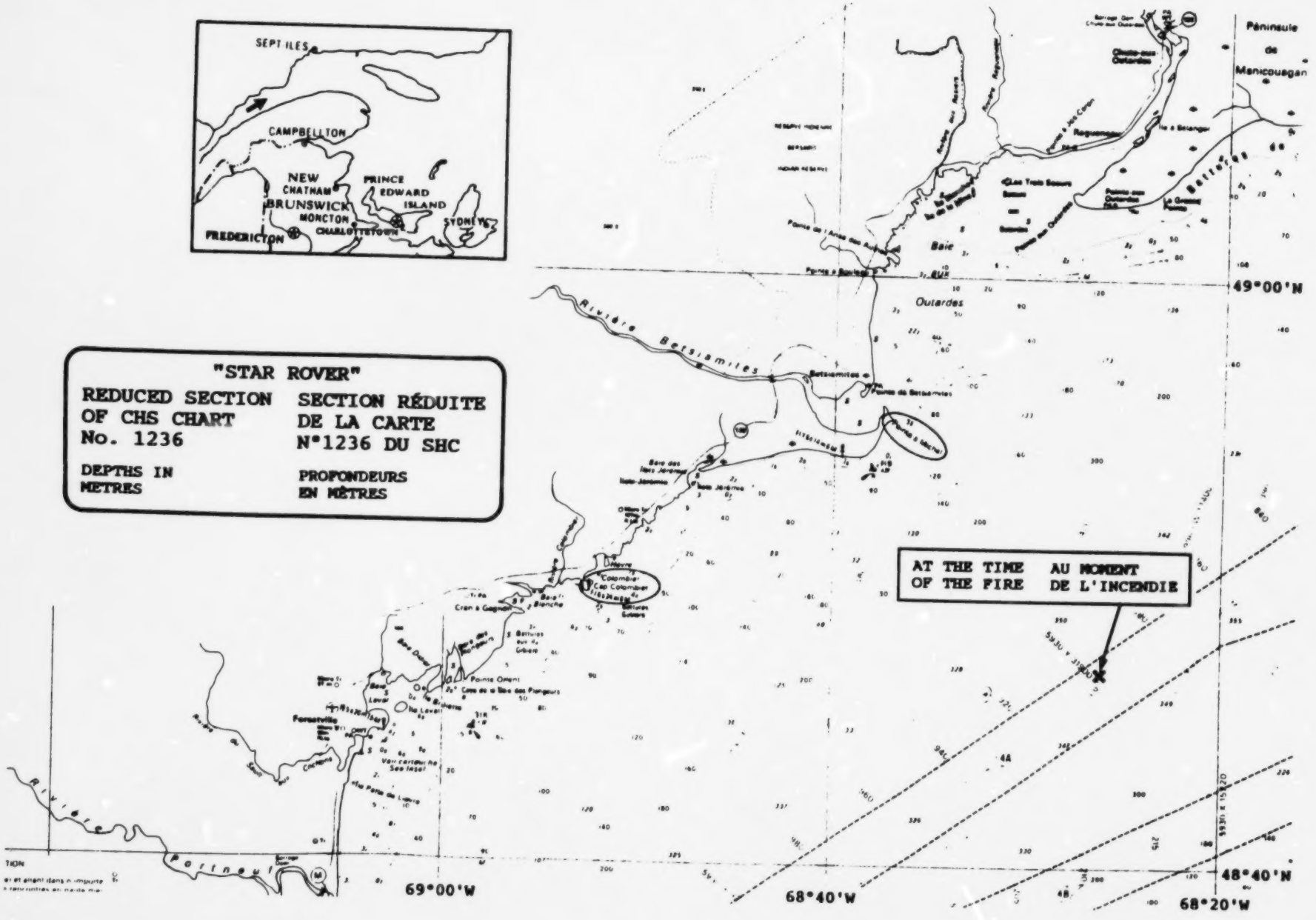
OTTAWA, ONTARIO
NOVEMBER, 1989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MONCTON
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"STAR ROVER"
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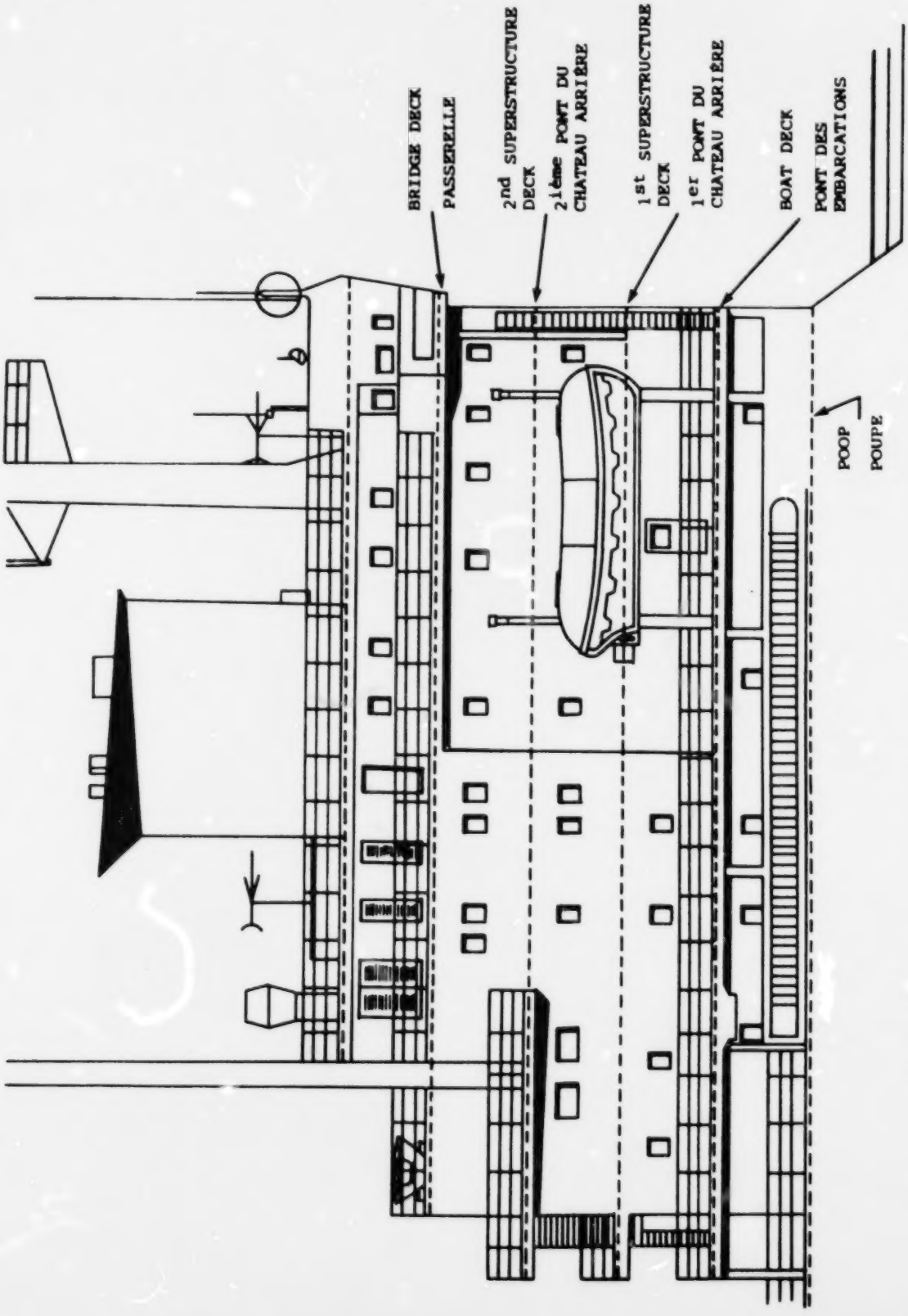
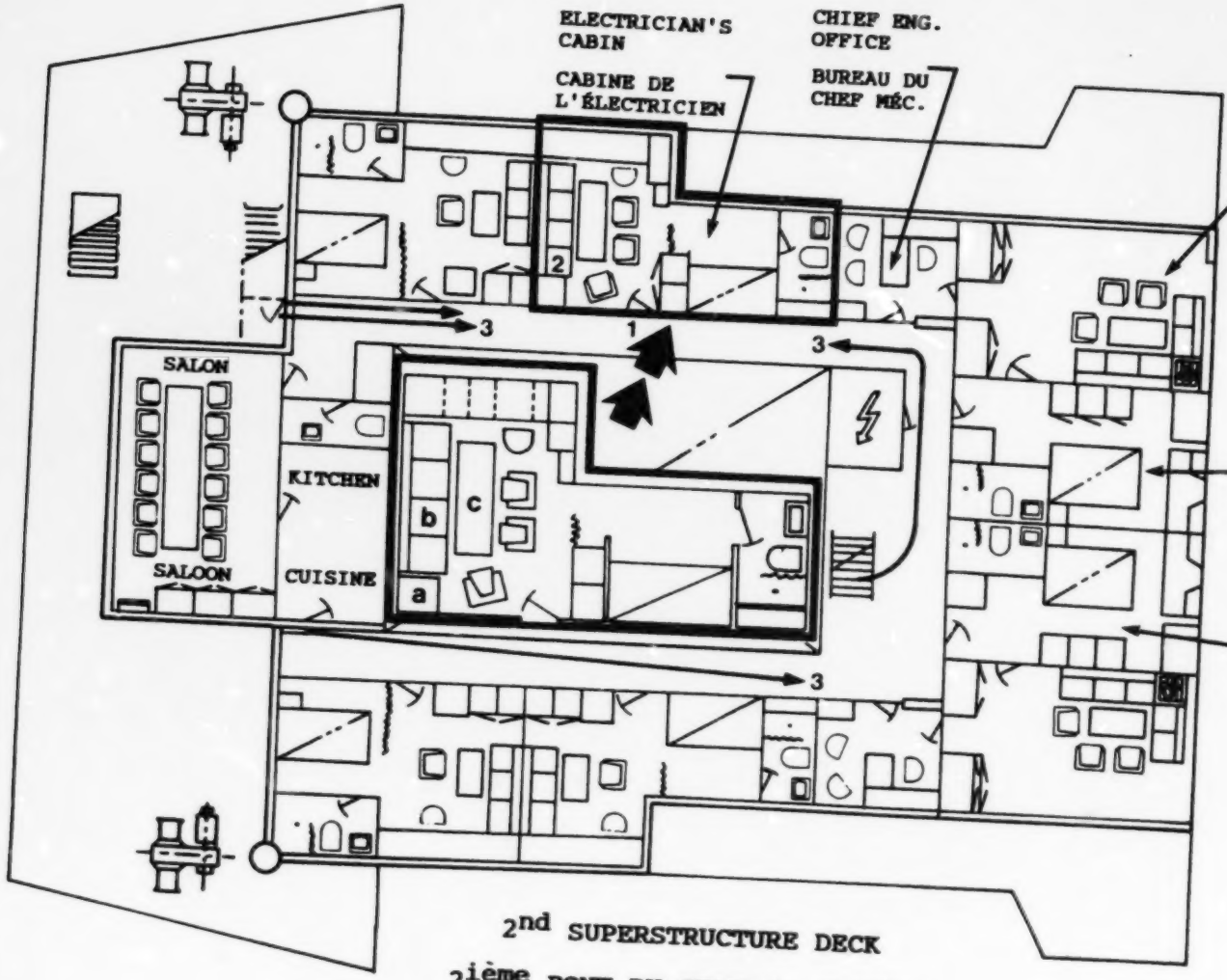
SECTION RÉDUITE DE LA CARTE N°1236 DU SHC
DEPTHS IN METRES
PROFONDEURS EN MÈTRES
AT THE TIME OF THE FIRE
AU MOMENT DE L'INCENDIE
Péninsule de Manicouagan
Baie
Outardes
Rivière Betsiamites
Betsiamites
Pointe Ormet
Forestville
Rivière Portneuf
49°00'N
48°40'N
69°00'W
68°40'W
68°20'W

ANNEX I

APPENDICE I





2nd SUPERSTRUCTURE DECK

2ième PONT DU CHATEAU ARRIÈRE

1. CABIN DOOR — PORTE DE LA CABINE
2. SEAT OF THE FIRE — BASE DU FOYER D'INCENDIE
3. THE FOUR HOSES USED BY THE CREW — LES QUATRE BOYAUX UTILISÉS PAR L'ÉQUIPAGE

a. SMALL REFRIGERATOR — PETIT RÉFRIGÉRATEUR
b. DAYBED — DIVAN
c. TABLE — TABLE

"STAR ROVER"

The "STAR ROVER" in tow, on arrival at Quebec.

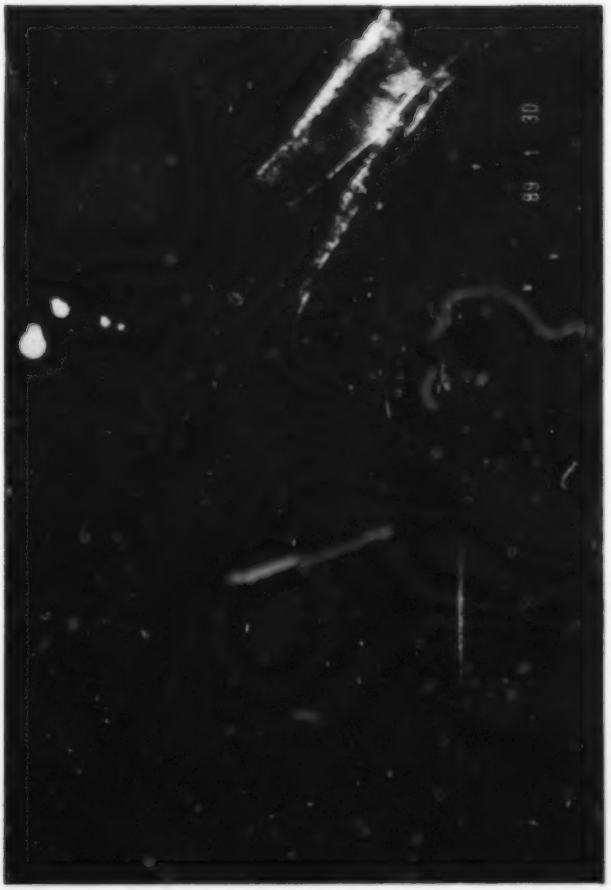
Le "STAR ROVER" en remorque au moment de son arrivée à Québec.

The water level in the lower deck alleyways after the fire.

Niveau d'eau dans les coursives du pont inférieur après l'incendie.

Port alleyway
before the fire.
Source:
sister ship
"FEDERAL HURON"

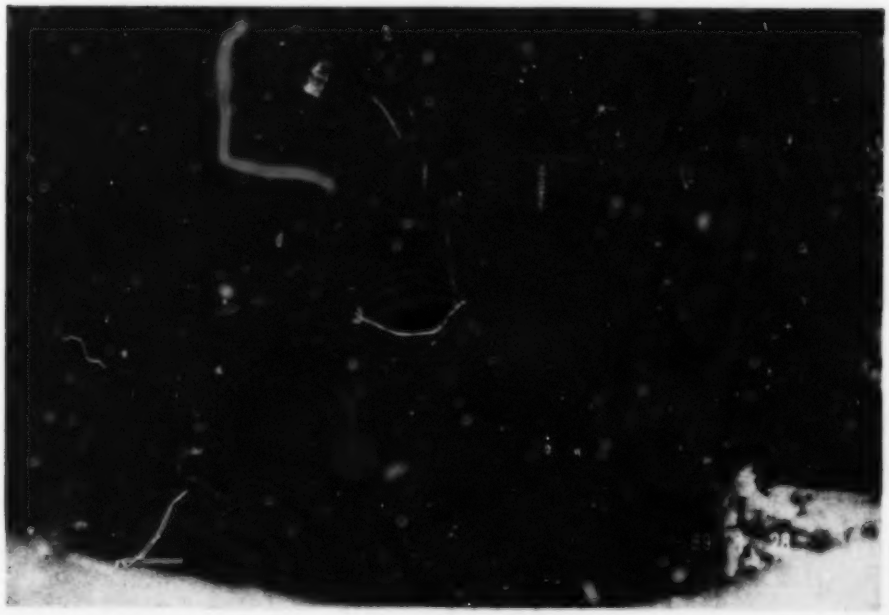
Coursive bâbord
avant l'incendie.
Source:
"FEDERAL HURON",
navire jumeau



Port alleyway after the fire.

Coursive bâbord après l'incendie.

View of the electrician's cabin before the fire.
Vue de la cabine de l'électricien avant l'incendie.



View of the electrician's cabin after the fire.
Vue de la cabine de l'électricien après l'incendie.

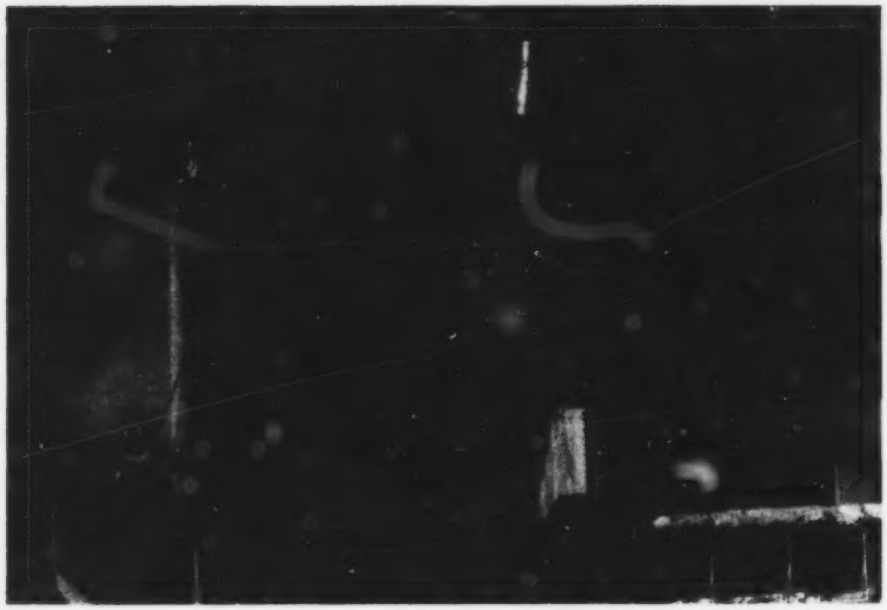
Location where the fire is believed to have started.

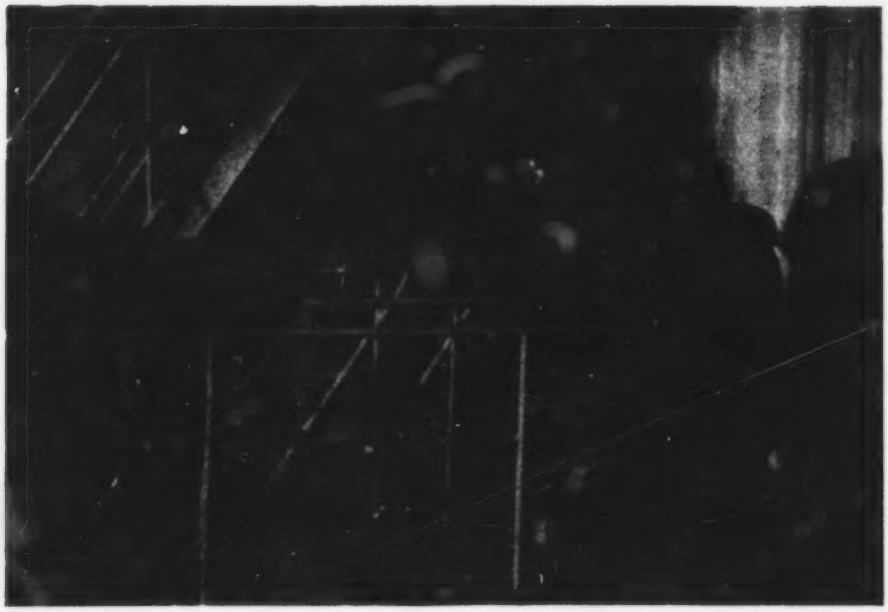
Endroit où l'on croit que les flammes ont pris naissance.

Source: "FEDERAL ROVER" - sister ship navire jumeau.

After the fire Après l'incendie

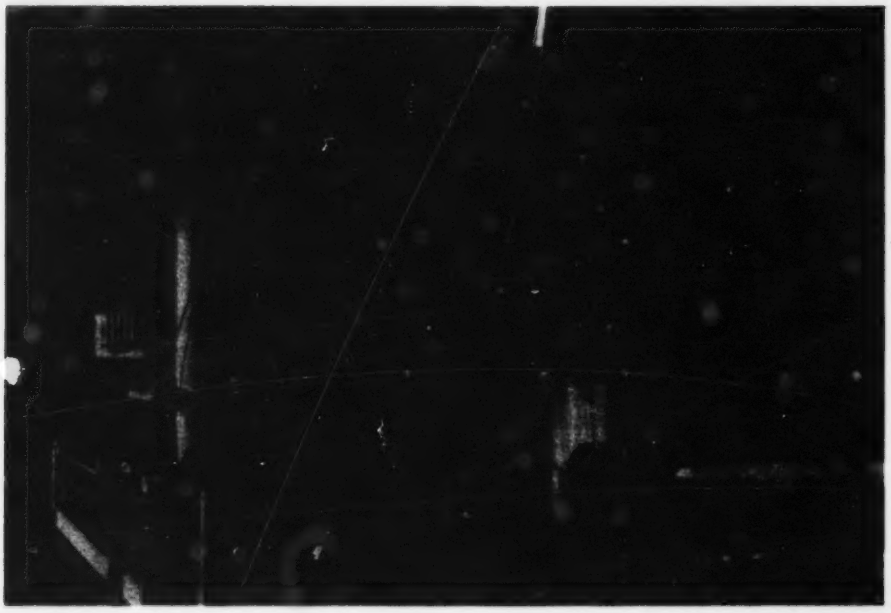
"STAR ROVER"





Fighting the fire. Combattant l'incendie.

"STAR ROVER"



Fighting the fire. Combattant l'incendie.